

Practical Guide to Savings and Payments in Super ESPC Delivery Orders

Prepared for the
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Federal Energy Management Program

Prepared by
Oak Ridge National Laboratory

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*A pdf version of this document is available for download from
www.eren.doe.gov/femp/financing/espc/practical_guide.html.*

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Abbreviations and Acronyms

DOE	U.S. Department of Energy
ECM	Energy-conservation measure
ESCO	Energy service company
ESPC	Energy savings performance contract(ing)
FEMP	Federal Energy Management Program
FY	Fiscal year
GHP	Geothermal heat pump
HVAC	Heating, ventilating, and air conditioning
IDIQ	Indefinite-delivery, indefinite-quantity (contract)
M&O	Management and operating (contractor)
M&V	Measurement and verification
O&M	Operations and maintenance
R&R	Repair and replacement

PRACTICAL GUIDE TO SAVINGS AND PAYMENTS IN SUPER ESPC DELIVERY ORDERS

1. INTRODUCTION

1.1 Goal

This document is intended to convey a practical understanding of how to interpret and apply the regulations governing savings and payments under the U.S. Department of Energy's (DOE's) Super Energy Savings Performance Contracting (Super ESPC) programs, particularly "Programmatic Guidance on Energy and Energy-Related Cost Savings and Payments Under Super ESPC," signed April 29, 1999. The goal of the guide is to provide the knowledge, tools, perspective, and benefit of others' experience to enable agencies to structure legal, feasible, and successful Super ESPC projects.

1.2 Statutory and Regulatory Basis

This practical guide incorporates the information given in the April 29 DOE guidance mentioned above. That guidance (posted at www.eren.doe.gov/femp/financing/espc/practical_guide.html) and this practical guide interpret the statutes and rules that define allowable energy and energy-related savings and payments under DOE's regional and technology-specific Super ESPC programs. The applicable statutes and rules include the National Energy Conservation Policy Act (NECPA 42 USC 8287) as amended by the Energy Policy Act of 1992 (Pub. L. 102-486) and codified into regulation as the DOE Final Rule (10 CFR Part 436).

1.3 Scope of the Practical Guide

Shaping a Super ESPC project that delivers optimal technical and financial performance requires full knowledge and careful analysis of all the technical and financial options. Understanding what kinds of savings may be accounted for and used to pay the contractor is critical to taking full advantage of the leveraging power of ESPCs. This guide translates into layman's terms the relevant statutes and regulations, discusses the practical implications of the rules, and covers the concepts that are the foundation of the Super ESPC program. Examples are used to illustrate a few of the types of savings that are commonly applied to payments to the contractor.

In response to needs expressed by many agency acquisition team members, this guide discusses accounting and financial administration of Super ESPC projects in Section 6, which outlines examples of generic procedures that agencies can adapt to their own financial systems.

This guide focuses on the basic financial structure of ESPC projects: the fundamental concepts in performance contracting, allowable savings, and financial administration. Establishing the cost baseline against which savings will be measured is a critical task in structuring the delivery order, as is defining and specifying a plan for measurement and verification (M&V) of energy cost savings. While we recognize the central importance of M&V and cost baseline issues, they are beyond the scope of this guide and are addressed here only peripherally. More information about M&V and establishing cost baselines is available at the websites listed below.

1.4 Super ESPC Information Available On Line

Guidance documents and other information regarding the regional and technology-specific Super ESPCs are available on the Federal Energy Management Program's (FEMP's) web site.

- FEMP's home page: www.eren.doe.gov/femp/

- FEMP's Super ESPC page, with a link to DOE Regional Office contacts:
www.eren.doe.gov/femp/financing/espc.html
- Information about technology-specific Super ESPC programs:
www.eren.doe.gov/femp/financing/espc/technologies.html
- FEMP *M&V Guidelines* and other information on M&V:
www.eren.doe.gov/femp/financing/espc/measguide.html

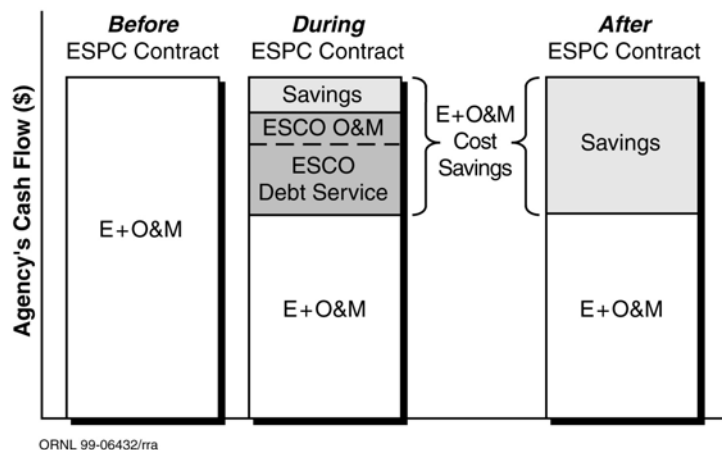
2. BACKGROUND

The Super ESPC program is designed to help federal agencies improve energy efficiency in their facilities and reduce their energy costs. Federal agencies are motivated to conserve because of the mandates of the Energy Policy Act of 1992 and several executive orders, the latest of which is E.O. 13123. Super ESPCs streamline the process of gaining access to the expertise and private financing offered by energy service companies (ESCOs) under performance contracts.

Under the Super ESPC program, indefinite-delivery, indefinite-quantity (IDIQ) contracts were awarded to a number of ESCOs through a competitive process. With these contracts in place, the lion's share of the government procurement process is already done. Federal customers can place and implement delivery orders against the contracts in a fraction of the time it takes to develop a stand-alone ESPC.

The contracts under the regional and technology-specific Super ESPC programs require the ESCOs to guarantee that the energy-efficiency improvements will result in a specified level of annual cost savings to the federal customer and that these savings will be sufficient to pay the ESCO for its work over the term of the contract. The ESCO and the customer agree on annual firm, fixed-price payments that are less than the cost savings guaranteed for the year. Savings to the customer must exceed payments to the ESCO in every year of the contract's term. Payments are made monthly (or annually), and verification that the guaranteed savings are being delivered occurs at least annually.

ESPCs Reallocate the Federal Customer's Payments for Energy and Energy-Related Operations & Maintenance Expenses (E + O&M)



The figure above portrays the dynamics of a Super ESPC project in terms of the agency's cash flow before, during, and after the term of the delivery order contract. During the term of the delivery order, the agency continues to budget and request appropriations as before, and savings generated by the ESPC project are applied to payments to the ESCO. At the end of the contract term, payments to the ESCO cease and savings to the agency continue to accrue.

3. FUNDAMENTAL CONCEPTS IN PERFORMANCE CONTRACTING

Understanding the dynamics and mechanics of federal ESPCs helps to provide a context for the specific rules and definitions that apply. Some of the organizing principles of ESPCs and their relation to savings and payments are discussed in general terms in the following paragraphs and then summarized in a list. The rules and regulations are discussed in greater detail in Sections 4 and 5.

3.1 Cost Savings Defined

The definition of cost savings under federal Super ESPC programs is the first fundamental:

Cost savings are defined as a reduction in the cost of energy and related expenses for operations and maintenance (O&M) and repair and replacement (R&R) of energy-consuming equipment, relative to a pre-project base cost — a baseline representing the amount the agency would pay absent implementation of the ESPC.

3.2 The Principal Players and Their Roles

A Super ESPC delivery order project is a partnership between a customer (a federal agency site) and one of the ESCOs pre-selected under the Super ESPC Program.

The Principal Parties to the Contract

- **The ESCO (contractor)**
 - performs the work and delivers the energy-efficiency project as defined in the delivery order;
 - assumes the up-front costs, either financing the project in-house or acquiring financing from a third party, and guarantees savings will exceed payments; and
 - retires the debt and is compensated for services with payments over the delivery order term.
- **The federal customer (government agency)**
 - continues receiving annual budget appropriations for energy costs and energy-related O&M and R&R costs in amounts corresponding to the pre-project baseline;
 - from these funds, pays for energy costs and energy-related O&M and R&R costs;
 - from these funds, pays the ESCO over the term of the delivery order (which is possible because savings are guaranteed to exceed payments); and
 - manages the contract from initial development throughout the contract term.

3.3 Energy-Related Building Improvements Without Waiting for Appropriations

The Super-ESPC programs allow federal agencies to implement energy-efficiency projects without having to request special capital appropriations from the federal budget. ESPCs provide a means of using private financing to leverage funds that are routinely appropriated to the agency for energy and energy-related O&M and R&R of energy-consuming equipment. When a Super ESPC project is implemented, money the agency would have otherwise spent annually for wasted

energy and O&M and R&R of obsolete equipment is instead spent on renewal of energy-consuming systems to improve energy efficiency.

Federal agency customers may enter into a multiyear ESPC if they have their customary appropriations for energy and energy-related O&M and R&R. There is no requirement that the agency have appropriated funds available upon the award of a Super ESPC delivery order to pay for the total costs for the entire term of the ESPC. The Super ESPCs allow the federal customer to incur a long-term obligation to pay for the project from guaranteed savings. The ESCO arranges financing for the up-front costs and retires the debt over the delivery order term. The maximum term of a delivery order under the Super ESPC Program is 25 years.

See Section 4 for a discussion of allowable sources of savings and payments in ESPCs.

3.4 Long-Term Value

ESPCs address a problem that has plagued federal facilities for many years, as they coped with tight budgets. Year-by-year budget appropriations for energy and maintenance of energy-consuming systems rarely provide funding levels adequate for capital renewal of energy-consuming systems, especially renewal with higher-cost, highly energy-efficient equipment that can be justified on a life-cycle basis. Institutional foresight that is limited to just a few budget cycles results in purchases based on lowest first cost, disallowing considerations of value based on longer-term life-cycle costs. Consequently, energy efficiency and true economy have been sacrificed for short-term cash flow. These short-term gains, however, are too often negated by perpetually high energy costs, maintenance costs for equipment that is less than optimal for its application, and repeated procurements for more patchwork solutions. ESPCs allow agencies to invest in long-term value and efficiency.

3.5 Using Cost Savings to “Finance” Energy-Efficiency Projects

When planning an ESPC project, calculating cost savings is analogous to raising working capital. Because the project must be paid for out of the cost savings resulting from the work performed under the delivery order, the cost savings, term of the delivery order, and prevailing interest rates dictate how much “working capital” can be raised (i.e., how much project investment the savings stream can support). To optimize savings, most ESPC energy-efficiency projects include several energy-conservation measures (ECMs) with a range of payback periods. For example, bundling lighting retrofits, which may pay for themselves by their cost savings in less than two years, with longer-payback HVAC infrastructure improvements enables the comprehensive “deep-savings” project to still have an acceptable term.

DOE FEMP guidance indicates that life-cycle costs for ESPC projects may be analyzed for the overall project, rather than at the level of individual ECMs. Each ECM need not be life-cycle cost effective on its own provided that the project of bundled ECMs is life-cycle cost effective. This allows agencies to accomplish energy-related retrofits that are needed (and sometimes required), but have marginally acceptable payback periods, as economically as possible by including them in their ESPCs instead of paying a premium for a separate construction project. Such measures are allowed by NECPA Title VIII in Section 801(a) and EPA Act of 1992 in Section 801(a), which both indicate that federal agencies “may enter into contracts [meaning delivery orders, within the framework of DOE Super ESPCs] under this title solely for the purpose of achieving energy savings **and benefits ancillary to that purpose.**” For example, a benefit “ancillary to that purpose” could be the addition of CFC-free chillers to preserve the ozone layer, whether or not the chiller ECM can stand on its own in a life-cycle sense when remaining service life of the existing equipment and the other factors are considered. (See 10 C.F.R. Section 436.31.)

3.6 Leveraging Power of One-Time Savings from Avoided Energy Projects

Leveraging of available funds that would otherwise be used for agency-funded energy-related O&M and R&R projects is among the most cost-effective strategies available to agencies developing ESPC projects. Agency acquisition teams planning a comprehensive energy-efficiency retrofit may find that the ESPC project will make unnecessary one or more repair or renewal projects. The savings from avoiding these outlays qualify as one-time energy-related cost savings.

One-time energy-related cost savings can be applied as payments to the ESCO in several ways to leverage the project investment. The savings can be used (1) to increase project investment and include a more comprehensive set of ECMs than would be possible otherwise, or (2) to lower the financed amount and shorten the term, thereby reducing interest costs over the term.

One-time energy-related cost savings are often applied as a pre-performance-period payment to the ESCO paid in “year zero,” which begins at the start of the construction period and ends upon government acceptance and commencement of the performance period. However, payments from one-time energy-related cost savings may also be scheduled as payments during the performance period.

See Section 4.4 for a discussion of allowable sources of payments from one-time savings.

3.7 Using the Super ESPC to Upgrade Projects Funded with Capital Appropriations

Even though federal agencies are encouraged to purchase the most energy-efficient equipment available for their capital projects, the amount of funding provided in many cases is insufficient to pay for the technologies that will yield the highest efficiency and best life-cycle value. A Super ESPC delivery order can be used to add energy-efficiency improvements to the capital project.

Payments to the ESCO for incremental energy improvements to a capital project must be made from the energy and related O&M and R&R cost savings generated by the improvements made possible by the extra investment brought forth by the delivery order. Payments to the contractor for the ESPC delivery order may not be made from line-item capital appropriations that are designated specifically (or “earmarked”) for an identified capital-improvement project. Payments for the ESPC must come from savings to accounts intended to pay for energy and related O&M and R&R of energy-consuming systems.

See Section 4.4 for more discussion of allowable sources of payments to the ESCO.

3.8 Summary

Fundamental Concepts in Energy Performance Contracting

- **Cost savings** are defined as a reduction in the cost of energy and related O&M and R&R expenses relative to a pre-project baseline.
- **A Super ESPC delivery order project is a partnership** between one of the Super ESPC ESCOs and a federal customer.
- **ESPCs use private financing** to leverage the funds in federal agencies’ budgets for energy and related O&M and R&R.
- **Long-term value** can replace lowest first cost as the basis for purchasing decisions under Super ESPCs.

(continued on next page)

Fundamental Concepts in Energy Performance Contracting (cont'd.)

- **Bounds on magnitude of investment in ECMs:** In an ESPC, cost savings, the term of the delivery order, and prevailing interest rates determine how much investment in ECMs can be made and therefore how comprehensive the project can be.
- **Contract term:** Project costs, magnitude of energy and energy-related cost savings, energy efficiency and payback periods of the energy-conserving equipment installed, and financing costs are factors that must be weighed against each other in planning an ESPC project. The term of the delivery order will be a function of these factors, but cannot exceed 25 years.
- **Energy-conservation measures:** A range of ECMs in comprehensive energy-efficiency projects can balance payback periods to achieve an acceptable contract term.
- **One-time cost savings:** Savings from avoided spending for “stand-alone” energy-related O&M and R&R projects made unnecessary by the ESPC project can be used in the ESPC to apply extremely cost-effective leverage of agency funds. These “stand-alone” projects are never optimal, are often wasteful, and are best integrated into ESPC holistic solutions whenever possible.
- **Upgrading capital improvement projects with ESPCs:** A Super ESPC delivery order may be used to add energy-efficiency improvements to projects that are otherwise funded by line-item capital appropriations, but payments to the ESCO for upgrades or add-ons must reflect savings to agency budgets, specifically, money that would have otherwise paid for energy and energy-related O&M and R&R of energy-consuming systems.

4. ALLOWABLE SAVINGS AND SOURCES OF PAYMENTS

This section is more closely focused on savings and payments in performance contracting. The discussion begins with definitions of the types of savings that can be accounted for and used to support payments to the contractor. Some conditions that apply to payments to the contractor are discussed next. For these savings to be used to support payments to the contractor, they must also be “real” savings, as defined below. Baseline costs, against which savings are measured, are briefly discussed. Additional cautionary directives regarding documentation of savings also apply and are reviewed. The definition of allowable savings is expanded in Section 5 by using examples of situations that illustrate particular types of cost savings.

4.1 Allowable Cost Savings

The statutory and regulatory basis for defining how agencies may pay for energy projects performed under Super ESPC delivery orders is found in 42 USC 8287a and 10 CFR Part 436.36. The money to pay the contractor for the work must be paid from funds appropriated for energy expenses and related O&M and R&R expenses, and must be from cost savings that result from the ESPC project itself. Savings of expenses for general repair and replacement of energy-consuming systems are allowable for use as payments to the ESCO as long as the money is not line-item capital appropriations earmarked for a specific project. Two main categories of savings are referred to in ESPC delivery orders: (1) energy cost savings and (2) energy-related O&M and R&R cost savings. There is no basis in the ESPC statute or regulations for requiring that energy savings constitute 50% or any other arbitrary proportion of total cost savings.

4.1.1 Water Cost Savings

The costs and savings attributable to water-conservation measures may be included in calculating and supporting payments to the ESCO and in the evaluation of life cycle cost effectiveness of the project under some circumstances. Water conservation may be included in Super ESPC projects if (1) the primary purpose of the Super ESPC delivery order is energy conservation or energy cost saving, and (2) the water-conservation savings are an integral part of the energy project. Especially where water and energy conservation are so intertwined that excluding water-conservation measures is counterproductive to accomplishing energy savings, the water-conservation measures are allowed.

4.2 Energy vs. Energy-Related Cost Savings

4.2.1 Energy Cost Savings

Energy cost savings are reductions in costs for energy as a commodity, which may result directly from using less energy or from using renewable energy sources. Energy costs can also be reduced by paying lower rates for the energy. Lowering peak demand or correcting power factor can result in lower rates being charged by the energy supplier. Energy cost savings are generally “recurring” savings—savings that occur year after year.

4.2.2 Energy-Related Cost Savings

Energy-related cost savings are reductions in expenses *related* to energy-consuming equipment such as HVAC systems, lighting, and water heaters. They may be recurring or one-time savings. Recurring energy-related cost savings generally result from reduced O&M and R&R expenses. One-time energy-related cost savings can result from avoided expenditures of O&M and R&R funds for projects that, because of the ESPC project, will not be necessary. Including one-time energy-related cost savings in the financial structure of an ESPC project before the money for the planned expenditure has been appropriated entails some risk to the agency. If the expected appropriation is not made, the agency is still liable for making the payments that were calculated based on expected savings from avoiding the planned expenditures. (See Section 6.) Most Super ESPC payments from one-time savings from avoided projects have to date been made during the “year zero” pre-performance period, rather than in later years during the performance period, because of the risk of committing funds before they are received.

4.3 Real Savings

Only “real savings” may be applied to contractor payments; that is, the savings must show as reduced expenses in the agency’s accounts for energy or energy-related O&M and R&R. Payments must come from money that the government was either already spending or planning to spend, which can now be redirected because of the energy work that is done under the ESPC. The corollary to this requirement is that the ESCO shall be paid from funds budgeted and allocated for energy (e.g., for utility payments) or energy-related O&M and R&R. Only real savings, by definition, will make money available for contractor payments.

4.3.1 When Real Is Not Ideal: Recurring Energy-Related Savings

Tight budgets in many cases force agencies to stretch dollars by operating their facilities using substandard procedures or equipment. Using the least expensive (but less effective) air filters for a ventilation system, for example, might be necessary to keep expenses within budget. A nearly universal strategy for cutting expenses is deferring maintenance, repairs, and replacements. However, in cases such as these, the energy-related savings must be figured on the basis of actual budgeting and spending patterns rather than on the level of spending that would have been necessary for optimal O&M and R&R of the system.

4.3.2 When Real Is Not Ideal: One-Time Energy-Related Savings

A similar standard limits the amount of one-time savings claimed for energy projects that are made unnecessary by an ESPC project. The amount that may be claimed as a one-time energy-related avoided-project savings in the “year zero” pre-performance period may not exceed the available amount in agency accounts that are usable for energy-related O&M and R&R. If the payment from one-time savings is scheduled for the performance period, it may not exceed the amount planned and budgeted for the avoided project.

4.4 Payments to the Contractor

The laws and regulations governing payments to the contractor have been mentioned in the foregoing discussion. Statutes and guidance specify permissible sources of the money for ESPC payments and define the relationship of guaranteed cost savings to payments. The ESPC delivery order must also specify agreed-upon methods of determining cost savings and verifying that guaranteed savings are realized each year. The conditions that payments must meet to comply with ESPC regulations are summarized below.

4.4.1 Allowable Sources of Payment Funds

The National Energy Conservation Policy Act (42 USC § 8287), which authorizes federal agencies to use ESPCs, says in Sec. 802, “Any amount paid by a Federal agency pursuant to any contract entered into under this subchapter may be paid only from funds appropriated or otherwise made available to the agency . . . for the payment of energy expenses (and related operation and maintenance expenses).” Note that related O&M expenses include general repair and replacement expenses.

Agency personnel generally know which of their accounts are used to pay for energy commodities, and these accounts are allowable sources of payments under ESPC. On the other hand, agencies use various terms for organizing their own energy-related O&M and R&R budget categories, and the meanings assigned to “capital,” “operating,” and other types of funds vary from one agency to another. However, only the purpose assigned by *Congress* to an appropriation is important in this context, regardless of the agency’s customary terminology. If the money is useable for general maintenance, operation, repair, and replacement of energy-consuming systems (as opposed to being earmarked for a specific project via a capital line item), it may be used for payments to the ESCO.

One-time savings and payments from general O&M and R&R accounts merit further clarification. When one-time payments are made during the “year zero” pre-performance period, the funds have already been appropriated at the time of delivery order award and therefore are known to be available. The intent of the ESPC statute is to permit the use of funds available in general O&M and R&R accounts that could be used for energy-related purposes for one-time “year zero” ESPC payments. Agencies receive general O&M and R&R appropriations because Congress recognizes the need for flexibility. What will break or leak next cannot be predicted with any degree of certainty. Flexibility also enables good business decisions to be made — for example, agencies can choose to forgo non-energy-related spending from these accounts in order to have the resources for a one-time payment and thereby obtain better value from their ESPC project. As long as the available funds in the general O&M and R&R accounts could have been used for energy-related projects made unnecessary by the ESPC, the agency can claim that they would have been so used. Agencies manage these accounts and therefore, within the confines of fiscal law and at their discretion, they can change their priorities. One-time payments scheduled during the performance period may not exceed the amount planned and budgeted in the general O&M and R&R accounts for the avoided project.

4.4.2 Payment for Development of Projects Not Awarded

In Super ESPC projects, the ESCO completes the entire project development process, typically through 30% design completion, before the agency obligates itself by issuing the delivery order. This puts a significant investment of the ESCO's resources at risk. Agencies may decide to terminate projects even after they issue a notice of intent to award to the ESCO. However, agencies should be aware that if the ESCO's project development progression meets the requirements of the customer, as set forth in the delivery order request for proposal and other communications, and the agency subsequently cancels the project, the ESCO will likely have a legitimate claim to recover costs for project development activities if the notice of intent was issued.

Payments to ESPC contractors must satisfy these criteria:

- **Cost savings must exceed payments.** Guaranteed cost savings to the federal customer must exceed payments to the contractor in every year of the delivery order term.
- **Payments to contractors** must come from funds appropriated for energy, energy-related operations and maintenance, and general repair and replacement of energy-consuming systems.
- **Documentation.** The basis for determining energy and energy-related O&M and R&R cost savings is documented and agreed upon by the federal customer and the contractor.

4.5 The Cost Baseline

Savings are measured against baseline costs—the expenses that the agency would have incurred had the ESPC delivery order not been implemented. Baseline costs are established as part of the measurement and verification (M&V) methodology that is agreed upon by the contractor and the customer and is documented in the delivery order.

Baseline costs are not only the reference point for figuring savings; they also affect the amount of funding that will be annually requested by the agency and appropriated by Congress for energy and related O&M and R&R expenses throughout the term of the contract. Because the contractor guarantees that delivery order cost savings will exceed contractor payments, the appropriated funds will cover all energy and related O&M and R&R expenses plus payments to the contractor.

By statute, the baseline amount is equal to the sum of (1) the energy use baseline used under the ESPC delivery order (adjusted if appropriate), multiplied by the unit energy cost, plus (2) pre-project related O&M and R&R costs, adjusted for increases in labor and material price indices.

Annual Appropriations Must Cover Routine Energy and Related O&M and R&R Costs Plus ESPC

During the term of the contract, the yearly appropriations from Congress for energy and related costs will be based on pre-project baseline costs. These funds must cover

- energy costs,
- energy-related O&M and R&R costs, and
- payments to the contractor for the ESPC delivery order project.

4.6 DOE FEMP Programmatic Guidance on Savings and Payments

Early experience with ESPCs demonstrated the wisdom of several practices that have since become required standard procedure. For example, differences of opinion concerning baseline costs and calculation of savings are now precluded by requirements that the ESCO and the agency agree on and document in the delivery order the methodology to be used to determine baseline costs and savings. DOE's summary guidance on savings and payments in ESPCs directly addresses this issue and emphasizes the following directives.

DOE FEMP Programmatic Guidance on Savings and Payments in Super ESPCs

Establishing the Basis for Determining Savings

The basis for determining cost savings (the M&V method) must be agreed on and documented in the delivery order.

Documentation of Energy-Related O&M and R&R Savings

DOE FEMP guidance stresses the directive that agencies should "exercise due diligence" to document for the project all of the energy-related O&M and R&R cost savings in the delivery order, which may include (1) for recurring energy-related O&M and R&R cost savings, the estimated avoided operation, maintenance, renewal, repair, or other costs; and (2) for one-time energy-related O&M and R&R cost savings, the estimated cost of the avoided government projects.

Risk of Including Funds Not Yet Appropriated

The summary guidance also makes clear that agencies take a risk when including one-time savings from avoided spending for government energy projects for which funds are budgeted for request, but not yet appropriated. When an ESPC delivery order is awarded that includes such savings and associated contractor payments, the agency is obligating itself to making the payments in full, even if the requested appropriation does not materialize in full.

Payments for ESPCs Used in Conjunction with Capital-Improvement Projects

Payments to the contractor for energy-efficiency improvements done under an ESPC delivery order but in conjunction with a line-item capital-improvement project must not come from capital appropriations earmarked for the project. These payments must be made from funds budgeted and allocated for energy and related O&M and R&R and must be less than the savings made possible by the ESPC investment.

4.7 Checklist of Guiding Principles and Directives on Savings and Payments

Allowable Savings and Payments

- **Savings that may be used to support payments** to the contractor may be energy cost savings or energy-related cost savings (from reductions in expenses related to energy-consuming systems — i.e., O&M and R&R costs).
- **Water and sewer cost savings** may be used to support payments to the contractor if (1) the primary purpose of the contract is energy conservation and energy cost savings and (2) the water-conservation savings are an integral part of the energy project.
- **Only real savings** may be applied to contractor payments—savings that show as reduced costs for energy or energy-related O&M and R&R expenses.
- **O&M and R&R savings may be claimed only for the amount that was actually budgeted or being spent**, even if that amount was insufficient for properly maintaining or running a given system. Higher amounts representing the ideal for optimal performance or maintenance may not be claimed.
- **The amount that may be claimed as one-time savings** from projects that are made unnecessary by the ESPC and applied as a pre-performance-period payment in year zero may not exceed the available amount in agency accounts that are usable for energy-related O&M and R&R. If the payment from one-time savings is scheduled for the performance period, it may not exceed the amount planned and budgeted for the avoided project.
- **Payments to the contractor are restricted by these standards:**
 - Savings must exceed payments in every year of the contract.
 - Funds must come from appropriations for energy costs or related O&M and R&R costs.
 - The basis for determining cost savings of all types is agreed upon and documented by the agency and the contractor.
- **Savings are measured against baseline costs**—the expenses that the agency would have incurred had the ESPC delivery order not been implemented.
- **Yearly appropriations from Congress for energy and energy-related O&M and R&R costs** during the term of the ESPC delivery order will be based on pre-project baseline costs. During the term of the contract, these regular appropriations must cover
 - energy costs,
 - energy-related O&M and R&R costs, and
 - payments to the contractor for the ESPC project.
- **The basis for determining all savings must be documented** and agreed upon by the contractor and the customer in the delivery order.
- **Agencies are advised to carefully document cost savings** of every kind.
- **Including requested funds not yet appropriated:** If one-time savings for avoided general O&M and R&R projects are included in a delivery order award before the funds are appropriated (such as in years during the performance period), the agency is obligated to make the full payments as per the fixed price schedules, even if the expected level of general O&M and R&R appropriations does not materialize in full.
- **Using ESPCs to upgrade capital projects:** A Super ESPC delivery order may be used to add energy-efficiency improvements to projects that are funded by line-item capital appropriations earmarked for a specific project. Payments for such delivery orders must be made from energy and related O&M and R&R cost savings made possible by the ESPC investment.

5. ESPC COST SAVINGS — SOURCES AND EXAMPLES

Some sources of cost savings are listed in this section, along with narrative to reinforce an understanding of how these savings may be incorporated into the structure of delivery orders and used to support payments to contractors. Briefly described scenarios for each type of cost savings illustrate their application in ESPC delivery orders. Allowable sources of cost savings are not limited to those illustrated in these examples.

5.1 Sources of Energy Cost Savings

Energy cost savings are at the core of all Super ESPC delivery order projects. All delivery orders must include agreements on determining energy cost savings and corresponding contractor payments. Each year of the contract term the agency will continue to budget and request funds for energy costs (electricity, natural gas, propane, oil, etc.). The amount requested by the agency and appropriated by Congress to the agency for energy expenses is figured using the pre-project energy cost baseline. This amount is sufficient to pay energy costs and the contractor, because the energy cost savings that will be derived from the delivery order project exceed the agreed-upon payments to the contractor.

Energy Cost Savings

- **Energy savings** are generally ongoing after the ECMs are implemented — i.e., they are *recurring* in every year of the delivery order term.
- **Sources** of energy savings include, but are not limited to
 - less energy use,
 - improved pattern of energy use,
 - power factor correction,
 - fuel substitution or dual fuel, and
 - change in utility rate structure in conjunction with ECMs.

5.2 Examples of Energy Cost Savings

Less Energy Use. An old, inefficient boiler originally designed for coal but fitted with a natural gas burner 20 years ago is replaced with a bank of staged, modular, natural-gas-fired condensing boilers with much greater efficiency. Lower bills for natural gas represent an annually recurring energy cost savings.

Improved Pattern of Energy Use. A chiller plant is fitted with a chilled water storage facility and modified controls so that peak-period chiller operation is displaced with cool storage and night chiller operation to recharge storage. The avoided electricity peak demand charges are an annually recurring energy cost savings.

Power Factor Correction. Capacitor banks are added to balance loads on a facility's power system. The avoided power factor penalty charges are annually recurring energy cost savings.

Substitution of One Form of Energy for Another. A natural-gas line is run to the oil-fired boilers in a central steam plant, and dual fuel burners are installed so that the lowest-cost fuel can always be used. Oil backup allows gas to be purchased at its commodity cost without contract demand charges. The avoided fuel costs are annually recurring energy cost savings.

5.3 Sources of Energy-Related Cost Savings

5.3.1 Recurring Energy-Related Cost Savings

Many ESPC delivery order projects reduce the agency's costs of maintaining, operating, and performing general repairs and replacements to keep energy-consuming systems in service. Energy-related cost savings in the form of recurring O&M and R&R cost savings may in some cases be as significant as energy cost savings.

In developing the delivery order, the agency and contractor look closely at the ECMs to be implemented and determine whether the project will result in any real savings in energy-related O&M and R&R baseline budgets. If so, the avoided costs are estimated to the satisfaction of the agency and documented for the project file. As in the case of the energy budget, energy-related O&M and R&R funds requested by the agency and appropriated by Congress each year are figured using pre-project cost baseline metrics.

5.3.2 One-Time Energy-Related Cost Savings

One-time energy-related cost savings are realized when the government has available or budgeted funds to renovate, renew, or repair energy-consuming systems or modify them to meet environmental regulations, but the proposed delivery order makes those projects unnecessary. Avoided renewal or repair expenses for large equipment (such as a boiler) would generally be treated as one-time savings. (Avoided costs for ongoing repair, maintenance, or replacement-on-failure of many small separate units, however, are generally *recurring* cost savings.)

Energy-Related Cost Savings

- **Energy-related savings** may be recurring or may be one-time savings.
- **Sources** of energy-related O&M and R&R savings include
 - avoided current or planned spending,
 - transfer of responsibility for O&M and R&R to the ESCO, and
 - avoided renovation, renewal, or repair costs.

5.4 Examples of Recurring Energy-Related Cost Savings

Operation Costs. The contractor upgrades space- and water-heating equipment in a complex of buildings so that steam lines and a central steam plant are no longer needed, and the retiring boiler operator does not need to be replaced. The avoided costs of employing a boiler operator (salary, benefits, worker's compensation, overhead) are annually recurring energy-related cost savings.

Maintenance Costs. The contractor upgrades HVAC systems in a complex of buildings and assumes maintenance, repair, and replacement responsibility, replacing the current HVAC service subcontractor. The avoided subcontract cost is an annually recurring energy-related cost savings.

Renewal Costs. The contractor replaces an aging mixed-vintage population of small packaged HVAC units with new equipment. The old units were approaching, at, or exceeding their expected service lives, and the agency was planning to replace them with similar units as they failed as part of ongoing HVAC maintenance efforts. The planned expenditures for "like-to-like" replacements are annually recurring energy-related cost savings.

Repair and Replacement Costs. The contractor replaces a population of small packaged unitary HVAC equipment having significant remaining service life with substantially more efficient equipment, and assumes responsibility for maintenance, repair, and replacement. This allows the overburdened government maintenance staff to focus on non-HVAC maintenance needs or other buildings. The planned expenditures for repair parts and materials are annually recurring energy-related cost savings that can support contractor payments, but there are no personnel cost savings because the agency site's staffing level remains the same.

5.5 Examples of One-Time Energy-Related Cost Savings

Avoided Renovation. The contractor upgrades space- and water-heating equipment in a complex of buildings such that steam lines in the area are no longer needed. The government had planned to renovate one of the buildings using appropriations in an O&M and R&R account. As part of the planned renovation project, a new steam line was to be run around one wing of the building so that a steam line under that wing could be abandoned. This part of the renovation was intended to make the indoor environment more comfortable for building occupants and to eliminate the excessive cooling costs caused by the steam line. The expense of building a new steam line is avoided because the upgraded heating equipment makes it unnecessary, and this avoided expense qualifies as a one-time energy-related cost savings.

Renewal. As part of a comprehensive energy retrofit project, the contractor replaces an aging chiller that uses CFC refrigerant. The agency's planned "like-to-like" replacement with a non-CFC chiller using budgeted funds in an O&M and R&R account is no longer necessary. As an added benefit, the new chiller can be smaller because of lighting upgrades and other energy-conservation measures. The planned expenditure for the "like-to-like" chiller replacement is a one-time energy-related cost savings.

Avoided repair and replacement. The contractor upgrades space- and water-heating equipment in a complex of buildings such that steam lines and the central steam plant are no longer needed. The agency was planning to tear down and rebuild the boilers in the central steam plant using appropriations in an O&M and R&R account. The avoided boiler refurbishment expenditures are a one-time energy-related cost savings that can support a contractor payment.

5.6 Sources of Water Cost Savings

Water conservation is allowed as a sub-part of a Super ESPC energy-conservation measure as long as the primary purpose of the project is energy conservation. Services to supply water and process sewerage go hand in hand, and generally these services are billed based on consumption of supply water. Both water and sewer cost savings resulting from Super ESPC projects may be used to support ESCO payments.

Water conservation in many cases is so closely intertwined with energy conservation that excluding the water-conservation measure would be counterproductive to accomplishing energy savings. The integration of quick-payback measures such as low-use water closets and urinals with the set of retrofits is often the sensible business choice for the government, especially when economies of scale in terms of installation effort make the entire package of water-related measures highly cost effective.

Capturing all allowable water cost savings to enable inclusion of as many cost-effective energy improvements as possible in a comprehensive pay-from-savings project will maximize the value of the project to the government. It would be a poor business decision by the government to leave half of the feasible water-conservation measures undone after committing the resources to coordinate access of plumbing crews to tens, hundreds, or thousands of rooms in their buildings as part of an ESPC.

5.7 Examples of Water Cost Savings

Boiler and Steam System Retrofits. Retrofits of a boiler and associated steam distribution system to improve its efficiency. Replacing the condensate-return system and steam traps results in significant water conservation and cost savings (as well as significant energy savings).

Air-Conditioning Systems. Conversion of chiller condenser cooling from “once-through” to recycled water usage by installing a fluid cooler or cooling tower can contribute to cost savings to support payments to the ESCO.

Decreasing Hot-Water Demand. Measures that decrease hot water demand and energy use for water heating such as low-flow shower heads and flow restrictors or aerators on water faucets are well-known sources of energy and water savings.

Integrated Water-Conservation Measures. It doesn’t make sense to have qualified crews come and go and *not* install water-conservation measures in the same areas in the course of retrofitting for energy efficiency, when they can make an entire package of energy- and water-conservation measures more cost effective.

6. FINANCIAL ADMINISTRATION AND ACCOUNTING FOR SUPER ESPC PROJECTS

This discussion of financial administration and accounting for Super ESPC projects is in response to many requests from agency acquisition teams and others for such information. Among those who have expressed interest are champions of performance contracting who need facts to gain decision makers' support for a project, team members who anticipate questions from their finance and accounting departments, and contracts and finance officers who must ensure that their agencies remain compliant and fiscally responsible in whatever obligations they incur.

This information, based on consultations with agency accounting, finance, and contracts professionals, is intended as advisory and educational material — not as dictum or prescription. Every agency will have its own requirements to consider, but one of the main points here is that the regulations regarding Super ESPC projects require no new overlay of procedures on an agency's internal accounting routines.

The principal goals of this section are

- to clarify questions about regulatory requirements imposed on agencies' internal accounting and financial administration of Super ESPC projects;
- to answer frequently asked questions about these matters;
- to give some examples of generic standard accounting procedures that could be adapted to agencies' own systems of accounting for Super ESPC projects; and
- to give interested acquisition team members having no professional financial background an overview of the issues that may be of concern to their finance and accounting departments.

6.1 No Extraordinary Measures Required

Financial administration and accounting procedures are no more complex for Super ESPC projects than for any other contract and may be considerably simpler than for many transactions. Neither the Super ESPC program and contract nor related statutes or regulations impose any requirements for special internal accounting procedures on agencies implementing projects. Agencies' accounting professionals will find that a Super ESPC project requires no extraordinary measures and no procedures beyond standard accounting practice. Agencies will, however, want to ensure for their own purposes that payments to the ESCO and cost savings in the applicable accounts will be trackable and auditable.

In compliance with DOE FEMP guidance — and consistent with the intent of Super ESPC legislation to finance energy projects without resorting to capital line-item appropriations earmarked for a specific project — all of the savings from and payments for Super ESPC delivery orders will be reflected in the agency's accounts for energy and energy-related O&M and R&R. Annual appropriations for energy and energy-related O&M and R&R will continue to be distributed to these accounts, and payments to the ESCO taken out of them. Paying for energy costs and related O&M and R&R expenses in addition to paying the ESCO from these accounts is possible because the ESCO has guaranteed that the cost savings resulting from the work done under the delivery order will exceed the agency's payments for the project.

6.2 Proving Savings — NOT an Accounting Function

There is no requirement that the agency's internal accounting prove that the guaranteed savings are delivered (although savings will be established de facto when all the bills are paid out of the designated accounts). The legal and contractual responsibility to show that the guarantee has been

met is the ESCO's, through proving the performance of the implemented project. M&V procedures, not accounting methods, are the appropriate tools for this task. (M&V responsibilities are negotiated between the ESCO and the agency and are specified in the delivery order. In some cases the agency or a third party may take some responsibility for M&V, although the government prefers that these tasks and costs be included in the ESCO's scope of work under the delivery order. The agency is always responsible for accepting or contesting the conclusions of the annual M&V report.)

Accounting for a Super ESPC project requires the standard procedures of tracking income and expenditures, but not directly tracing guaranteed savings to specific accounts. Moreover, the ESCO's guarantee of cost savings is a wholesale guarantee that applies to the entire array of implemented ECMs and by implication to the overall bottom line on the affected energy and energy-related O&M and R&R accounts — but not to any one account or ECM in particular.

6.3 Budgeting and Accounting for Super ESPC Projects

Every agency has its own internal procedures and requirements, so the following discussion is intended as an overview of budgeting and accounting issues for a generalized case. Rather than presuming to instruct accounting and finance professionals in their own areas of expertise, this information is intended to (1) review typical procedures for the uninitiated and (2) highlight exceptions to general rules and address particular financial issues related to Super ESPCs.

6.3.1 Building the Budget

Budgeting forward for the performance period is based on known quantities rather than guesswork. Payments to the ESCO are fixed for the term of the contract at the outset and are not subject to change (unless the ESCO must compensate for shortfalls in meeting the savings guarantee or changes in the baseline are needed). Adjustments to allocations in the affected accounts may be necessary if the Super ESPC project results in decreases or increases in expenses in a given category. The delivery order, which details the types and amounts of cost savings that are projected, guides the allocation of funds to energy and energy-related O&M and R&R accounts during the budget-building process.

When entering into an ESPC delivery order, the agency must have sufficient funds to make all the first fiscal year (FY) payments. In other words, the agency must have its normal appropriations for energy and related O&M and R&R. Since projects are structured such that savings are guaranteed to exceed payments each year, this is a natural outcome. Agencies do not need to certify that funds are available for subsequent years. Savings to the normal annually appropriated accounts will be the source of future year payments.

The annual payment to the contractor, shown in the delivery order award, is divided by 12 to calculate the monthly payment amount. (Payments can also be made annually.) Generally the amount of the payment to the contractor changes annually, as shown on the delivery order payment schedule. If an automatic payment schedule is set up, an adjustment to the payment amount will need to be made every 12 months.

There are three components to each payment: principle repayment, interest expense, and performance-period services cost.

6.3.2 Invoices and Payments

The agency contracting officer formally accepts the operating project. Thirty days later the ESCO can submit its first monthly invoice. In large projects, with long construction periods, the agency may agree to pay all or part of the construction-period cost savings to the ESCO in the form of

pre-performance-period payments during “year zero.” (Note that year zero is defined as the length of the construction period and may exceed 12 months.)

The ESCO sends monthly invoices to the agency, starting with the first day of the month after acceptance. At this point, the agency will have completed the procedures to prepare for the initiation of invoicing and payments. Typically these procedures will

- establish the identity of the contract in the system;
- specify terms of payment and any special requirements for invoicing;
- designate accounts from which payments will be made; and
- authorize payment of the ESCO’s invoices for the delivery order (or specify authorization procedures).

Payments can be made in the same way an agency normally pays its bills. Typically,

- the invoice is received;
- the invoice is approved for payment;
- the invoice is sent to the accounts payable department; and
- accounts payable transfers payment to the ESCO, using funds from the account or accounts designated for payment on this contract.

Prompt payment procedures apply.

Adjustments for Savings Shortfalls. If the actual cost savings in any year of the performance period is less than the annual cost savings guaranteed in the delivery order, the ESCO must reimburse the agency for the shortfall. Within 30 days after agreement is reached on the annual energy audit results, the ESCO begins reimbursing the agency by accepting payments over the next year that are adjusted downward for the shortfall. The adjustment reduces payments by the amount of the shortfall, as determined by the annual energy audit for the previous year, and for the anticipated shortfall for the next year. The reduction for the next year’s anticipated shortfall continues until the ESCO has submitted, and the agency CO has accepted, evidence that the technical problem creating the shortfall has been fixed. Alternatively the ESCO can simply resolve the problem and issue a true-up payment that reconciles the difference.

Invoice Approval for M&O Contractors. Some federal sites, including DOE national laboratories, NASA space centers, and others, are administered by management and operating (M&O) contractors. In these cases, the agency signs the Super ESPC delivery order and in most cases approves invoices, but may delegate responsibility for paying the invoices to the M&O contractor. This is appropriate where the energy and related O&M and R&R funds in question are applied to the M&O contract on an ongoing basis. Since the delivery order results in savings to M&O accounts, the M&O makes the payments to the ESCO. Nevertheless, the Super ESPC delivery order is an agreement between the ESCO and the agency, as opposed to being between the ESCO and the M&O. Therefore, the ESCO will send invoices to the agency rather than the M&O (unless otherwise instructed), and the agency will approve them for payment (or delegate the responsibility to the site M&O).

6.3.3 One Rule Fits All

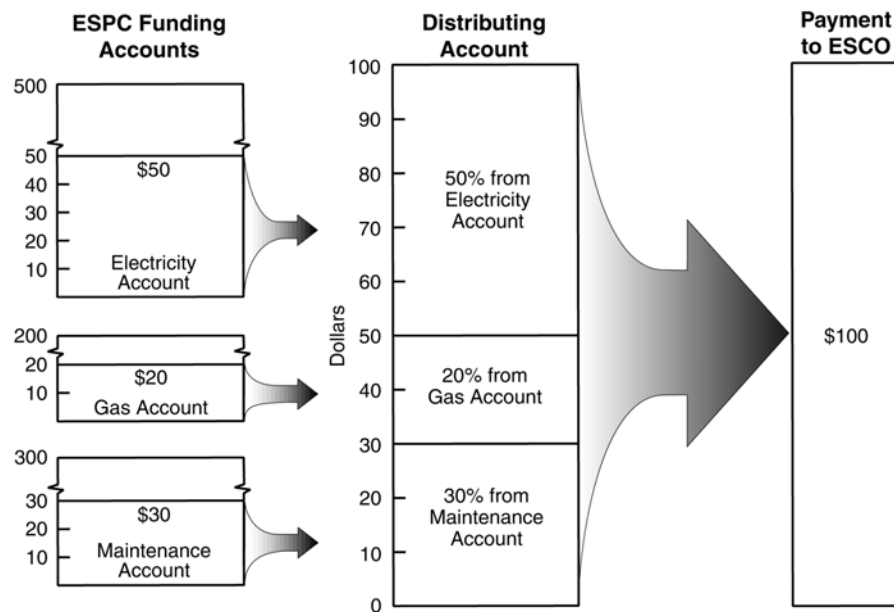
Although each facility’s accounting system is unique, and projects come in various shapes and sizes, one dominant rule applies to them all and makes the accounting decisions simple:

<p>Payments to the contractor come from the energy and energy-related O&M and R&R accounts that accrue savings as the result of the work done under the Super ESPC delivery order.</p>

Most projects are based on savings of more than one type, in more than one account. For example, a comprehensive energy retrofit may save energy costs in electricity and natural gas accounts, and also save maintenance costs (recurring energy-related O&M and R&R). One-time energy-related O&M and R&R cost savings may be a factor as well. Payments to the ESCO should correspond to the accounts to which savings accrue.

6.3.4 Using a Distributing Account to Streamline ESCO Payments

A “distributing account” (called a “cost center” in some systems) is a standard device to simplify payments that will draw funds from several accounts. The payments to the ESCO can be drawn from the distributing account, and the cost of the payment “distributed” to the designated energy and related O&M and R&R accounts — that is, funds are transferred from the designated accounts into the distributing account. The cost can be distributed on the basis of percentage shares or by another appropriate method. Many computerized accounting systems can handle and track these transactions automatically. The function of a distributing account is portrayed schematically in the figure below.



A distributing account is an accounting technique for simplifying payments that draw funds from several different sources.

6.3.5 Overhead Distribution

In agencies where utility and maintenance costs are recovered through overhead charges, Super ESPC projects in themselves present no reason for altering this arrangement. Utility and other infrastructure expenses continue to be distributed to overhead in the customary way (usually based on square footage of assigned building space). Many Super ESPC projects are treated as infrastructure improvements, leaving the status quo intact. Overhead charges are not affected, and the ESPC project is virtually invisible to the agency’s organizations in their cost reports.

Trickle-down financial effects from energy projects implemented through Super ESPC delivery orders are few. Adjustments may be necessary for large users of utilities or special-purpose

facilities that are charged based on usage or factors other than occupied space, if the energy project directly and significantly affects their costs — although costs are more likely to fall than to rise. Where customers are charged according to metered usage, there is ordinarily no reason to change costing mechanisms.

6.3.6 Raising Rates to Encourage Improvements in Energy Efficiency

The role of the agency's utility and facility managers in on-site demand-side management deserves special mention. In larger facilities, "public works centers" often provide services that smaller organizations and other consumers receive from the local utility company. These centers essentially buy energy in bulk and build and maintain facilities (poles and wires, pipelines, etc.) to distribute it to on-site customers according to their needs. Public works centers support themselves by adding a surcharge to the serving utility's energy rates, and may be motivated, like the serving utility, to keep energy throughput up so that increases in the surcharge rate can be avoided.

Facility managers can take advantage of several opportunities to get the best value possible from the site's Super-ESPC program and to encourage ongoing energy conservation at their facilities. When developing the delivery order, it is appropriate to value Super ESPC energy savings at the rate that tenant programs or activities are actually paying (utility rate plus the surcharge). This will generate more "working capital" to develop a project with greater long-term value, with a more comprehensive set of energy-cost-saving measures, or with a shorter term than might otherwise be possible. (Some organizations may not approve of valuing Super ESPC savings at the higher rate, including the "public works" surcharge, so it is advisable to gain concurrence from management and contracting decision makers in this matter early in the process rather than assuming that approval will be forthcoming. A more conservative approach is to value the savings at the straight utility rate.)

When an ESPC delivery order project is built and the performance period begins, public works can lower budgeted energy throughput by an amount equivalent to the savings guaranteed by the ESCO, immediately triggering an increase in the surcharge rate to keep public works revenues neutral. When faced with this rate hike, tenants who may have hesitated to implement energy projects before are motivated to get on board with the next delivery order to lower their energy costs. (Small projects will have only a minor impact on surcharge increases.)

6.3.7 Rebates

Many energy suppliers offer rebates or incentives for installing energy-efficient equipment. The ESCO is charged with investigating whether rebates or incentives are available for the project. Rebates can be handled in several different ways to benefit the agency and the project.

If a one-time rebate will be made after installation and acceptance, the estimated rebate amount can be deducted from the project cost by paying it out in the form of a year zero pre-performance-period payment. An alternate method, if a delay in receipt of rebates is expected, is to show the rebate payment as an additional principal payment in year 1. This does not violate the "payments cannot exceed savings" rule because this is not a payment from agency appropriations. The rebate payment is assigned directly to the ESCO by the agency. Any reconciliation of the actual amount received can be done as a credit or debit on one of the first years' invoices.

If the rebate will be paid out over a number of years, the estimated rebate amount may be shown as an extra principal payment in each year the rebate is received. Again, any necessary reconciliation would be handled on one of the first years' invoices. Of course, the agency may also elect to retain the rebate and receive it directly from the utility or other system benefit fund administrator. In this case the rebate does not appear on the delivery order financial schedules at

all. However, funds received directly from the utility are sometimes difficult to retain in the agency coffers and are often subject to requirements to return such funds to the U.S. Treasury.

6.3.8 Costs of Using Super ESPC

The agency will have expenses connected to the Super ESPC project in addition to ESCO payments. The agency may choose to reimburse DOE for the assistance of an experienced project facilitator. The costs for the standard FEMP project facilitator support services have typically been \$30,000 for an ESCO-identified project. Optional services are also available at additional cost.

This cost can be paid at the beginning of the project or over 5 years. When the agency chooses to pay the fee over time, that payment is not built into the delivery order payment stream, but is an entirely separate payment to DOE. Reimbursement to DOE for FEMP services is not required to be paid from the savings produced by the project.

Other Costs to the Agency. The agency is responsible for contract administration throughout the term of the Super ESPC delivery order. This and other costs of project management, submittal review, and construction oversight are covered according to the agency's own policies. The Super ESPC Delivery Order *Guidelines* discusses the importance of realistically assessing the extent to which agency resources will be taxed in developing and administering a Super ESPC project and strategies for maximizing the value of FEMP's assistance and the acquisition team's efforts.

6.3.9 Requirement to Return Net Savings to the U.S. Treasury

Regulations include a provision that civilian agencies must return 50% of the net savings resulting from Super ESPC delivery order projects to the U.S. Treasury. This rule has not been implemented or enforced, however, because in practice retained or net savings from ESPC projects are generally small to negligible in comparison to the energy and related O&M and R&R accounts they affect — comparable in their magnitude to routine energy-related O&M and R&R cost fluctuations caused by weather, unplanned equipment failures, or other common occurrences. Agencies commonly choose to put all of their guaranteed project cost savings into payments to the ESCO to minimize the contract term, thereby reducing interest costs.

6.4 Auditable Systems for Tracking Super ESPC Savings and Payments — Examples of Accounting for Typical Projects

To show one method of tracking the savings and payments associated with a Super ESPC project, we use five examples of typical Super ESPC projects, beginning with the simplest and proceeding to the more complex. The examples represent the range of allowable savings types that projects can include, illustrating the accounts (described in generic terms) that will show savings and be tapped for payments in each case. The following hypothetical projects are used as examples:

- Project 1 — Energy-efficient lighting retrofit
- Project 2 — Replacement of a coal-fired boiler with modular natural-gas-fired systems
- Project 3 — Comprehensive energy-efficiency retrofit
- Project 4 — Comprehensive GHP-centered retrofit, with ESCO assuming maintenance tasks
- Project 5 — Upgrade of water- and space-heating equipment

The information that agencies would typically track in accounting for their projects is shown in two tables in each example. The first table shows funding sources — the accounts where savings from the project will accrue, which might first be designated for the purpose of documenting for a contracting or finance officer how the Super ESPC project will be paid for. These “funding source accounts” are so designated to indicate that they reflect the source of ESCO payments — appropriations for energy and related O&M and R&R expenses, which will continue to be allocated at the pre-project baseline level (the amount the agency would routinely budget and allocate for energy costs and energy-related O&M and R&R if the delivery order were not implemented).

The allocations to the “funding source accounts” may have been adjusted in the budget-building process before the performance period began, using the delivery order’s projection of guaranteed cost savings to guide the attribution of cost savings to particular accounts.

The second table in each case shows expenditures from the funding source accounts. This table tracks payments to the energy supplier (utility company) and payments to the ESCO from utility savings and from accounts for energy-related O&M and R&R expenses where applicable.

Abbreviations and Assumptions Used in the Examples

The examples on the following pages are simplified sketches that are intended only to communicate the basics of auditable accounting for Super ESPC projects rather than to represent realistic economics of delivery orders. The numbers in the tables can be used to compare tables, but may not be realistic in terms of financial feasibility, and very few contract terms will be only 5 years long.

For the sake of minimizing verbiage, the following conventions are used in the examples.

- “Energy cost savings” or “energy savings” are assumed to be *recurring* savings (ongoing throughout the contract term).
- “O&M and R&R savings” are assumed to be *energy-related* O&M and R&R cost savings.

Project 1. Energy-Efficiency Lighting Retrofit

Savings: Energy Cost Savings Only — Electricity

A straightforward lighting retrofit, where new energy-efficient lighting equipment reduces electricity use, is perhaps the simplest type of energy project. Recurring energy cost savings only, which will show in an account for paying for electricity, are used to pay the contractor.

Budget for Super ESPC Project 1 (\$K)

Funding Source	Acct. No.	Term of delivery order				
		Year 1	Year 2	Year 3	Year 4	Year 5
Electricity	800-1	\$100	\$100	\$100	\$100	\$100
Total funding sources		\$100	\$100	\$100	\$100	\$100

Payments from Project 1 accounts (\$K)

Payments	Acct. No.	Payee	Term of delivery order				
			Year 1	Year 2	Year 3	Year 4	Year 5
Electricity	800-1	ESCO	\$8	\$8	\$8	\$8	\$8
		Utility Co.	\$90	\$90	\$90	\$90	\$90
Total payments			\$98	\$98	\$98	\$98	\$98

Project 2. Replacement of a Coal-Fired Boiler with Efficient Gas-Fired System

Savings: Net Energy Cost Savings

In some cases, energy use decreases in one category but increases in another as the result of energy-efficiency improvements. For example, many facilities realize large recurring energy cost savings from replacing obsolete and inefficient coal-fired boilers with highly efficient modular gas-fired systems. In this case, coal use will decrease, but natural gas use will increase.

When budgeting forward for the first year of the project's performance period, the utility accounts are adjusted, with the allocation for coal decreasing and the allocation for natural gas increasing according to the projections of energy usage in the delivery order.

The first table shows pre-performance-period (year 0) allocations for coal and natural gas and the adjusted allocations for the performance period (Year 1 through Year 5). The second table shows the breakdown of payments from each account. The ESCO is paid nothing from the coal account because the allocation to that account was reduced to cover only the coal cost. Regulations related to Super ESPC impose no requirements for the agency's internal accounts to individually represent actual savings.

Budget for Super ESPC Project 2 (\$K)

Funding Source	Acct. No.	Term of delivery order					
		Year 0*	Year 1	Year 2	Year 3	Year 4	Year 5
Coal	300-1	\$32	\$19	\$19	\$19	\$19	\$29
Gas	303-1	\$43	\$56	\$56	\$56	\$56	\$56
Total funding sources		\$75	\$75	\$75	\$75	\$75	\$75

*Year prior to performance period of project

Payments from Project 2 accounts (\$K)							
Payments	Acct. No.	Payee	Term of delivery order				
			Year 1	Year 2	Year 3	Year 4	Year 5
Coal	300-1	ESCO	\$0	\$0	\$0	\$0	\$0
		Supplier	\$19	\$19	\$19	\$19	\$19
Gas	303-1	ESCO	\$6	\$6	\$6	\$6	\$6
		Utility Co.	\$48	\$48	\$48	\$48	\$48
Total payments			\$73	\$73	\$73	\$73	\$73

Project 3. Comprehensive Energy-Efficiency Retrofit Including Chiller Replacement

Savings • Energy Cost Savings • One-Time O&M and R&R — Avoided Planned Chiller Replacement Project

Agencies may include one-time savings from avoided expenditures for energy projects that are made unnecessary by the Super ESPC delivery order project. For example, an agency site working towards compliance with environmental regulations may budget funds for phased replacement of CFC chillers. If a delivery order includes replacement of a CFC chiller, making the budgeted expenditure for chiller replacement unnecessary, the budgeted amount is a one-time savings for energy-related O&M and R&R.

One-time O&M and R&R savings are often applied as one large pre-performance-period payment in year 0, which can significantly reduce the amount that must be financed, thereby shortening the term of the contract and reducing interest costs to the agency.

Budget for Super ESPC Project 3 (\$K)							
Funding Source	Acct. No.	Term of delivery order					
		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Electricity	800-1		\$104	\$104	\$104	\$104	\$104
CFC Chillers	785-1	\$322	--	--	--	--	--
Total funding sources		\$322	\$104	\$104	\$104	\$104	\$104

Payments from Project 3 accounts (\$K)								
Payments	Acct. No.	Payee	Term of delivery order					
			Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
CFC Chillers	785-1	ESCO	\$320	--	--	--	--	--
Electricity	800-1	Utility Co.		\$90	\$90	\$90	\$90	\$90
		ESCO		\$11	\$11	\$11	\$11	\$11
Total payments			\$320	\$101	\$101	\$101	\$101	\$101

Project 4. Comprehensive GHP-Centered Energy Retrofit with ESCO Assuming Maintenance Responsibility for New Systems

Savings • Energy Savings • Recurring O&M and R&R Savings — Maintenance Subcontract

In some cases where the ESCO assumes responsibility for maintenance of the newly installed energy-efficient equipment during the term of the contract, significant recurring energy-related O&M and R&R savings can result, as in the following example. The ESCO implements a comprehensive energy-efficiency retrofit centered on GHPs in 4,000 institutional housing units. The ESCO agrees to maintain the new equipment, replacing maintenance services that were previously subcontracted, for a price that is lower than the maintenance cost baseline (the amount the agency would have paid for maintenance had the energy project not been implemented).

Budget for Super ESPC Project 4 (\$K)

Funding Source	Acct. No.	Term of delivery order				
		Year 1	Year 2	Year 3	Year 4	Year 5
Electricity	800-1	\$4800	\$4800	\$4800	\$4800	\$4800
Gas	695-2	\$100	\$100	\$100	\$100	\$100
Maintenance	750-1	\$1272	\$1272	\$1272	\$1272	\$1272
Total funding sources		\$6172	\$6172	\$6172	\$6172	\$6172

Payments from Project 4 accounts (\$K)

Payments	Acct. No.	Payee	Term of delivery order				
			Year 1	Year 2	Year 3	Year 4	Year 5
Electricity	800-1	ESCO	\$1500	\$1500	\$1500	\$1500	\$1500
		Utility Co.	\$3200	\$3200	\$3200	\$3200	\$3200
Gas	695-2	ESCO	\$100	\$100	\$100	\$100	\$100
		Utility Co.	--	--	--	--	--
Maintenance	750-1	ESCO	\$1094	\$1094	\$1094	\$1094	\$1094
Total payments			\$5894	\$5894	\$5894	\$5894	\$5894

Project 5. Upgrade of Water- and Space-Heating Equipment

Savings

- **Energy Cost Savings**
- **Recurring O&M and R&R Savings — Avoided Ongoing Equipment Renewal**
- **One-Time O&M and R&R Savings — Avoided Boiler Repair Cost**

A Super ESPC project may result in one-time and recurring energy-related O&M and R&R savings as well as energy cost savings, as in the following example. A delivery order includes work to upgrade water- and space-heating equipment in a complex of buildings, so that the central steam plant and steam lines in the area are no longer needed. The agency had been planning to tear down and rebuild the boilers in the central steam plant using funds allocated to an O&M and R&R account. Savings that are used to support payments to the contractor include

- the avoided cost of refurbishing the steam plant boilers (one-time O&M and R&R savings),
- savings from the avoided costs of ongoing renewal of the aging water- and space-heating equipment because it was upgraded (recurring O&M and R&R savings), and
- energy cost savings.

Budget for Super ESPC Project 5 (\$K)							
Funding Source	Acct. No.	Term of delivery order					
		Year 1	Year 2	Year 3	Year 4	Year 5	
Electricity	800-1	\$300	\$300	\$300	\$300	\$300	
Gas	695-2	\$135	\$135	\$135	\$135	\$135	
HVAC Maintenance	750-1	\$90	\$90	\$90	\$90	\$90	
Steam Plant Repair	760-1	\$280	--	--	--	--	
Total funding sources		\$805	\$525	\$525	\$525	\$525	

Payments from Project 5 accounts (\$K)								
Payments	Acct. No.	Payee	Term of delivery order					
			Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Electricity	800-1	ESCO Utility Co.		\$80 \$210	\$80 \$210	\$80 \$210	\$80 \$210	\$80 \$210
Gas	695-2	ESCO Utility Co.		\$35 \$95	\$35 \$95	\$35 \$95	\$35 \$95	\$35 \$95
HVAC Maintenance	750-1	ESCO Fac. Maint		\$10 \$78	\$10 \$78	\$10 \$78	\$10 \$78	\$10 \$78
Steam Plant Repair	760-1	ESCO	\$278	--	--	--	--	--
Total payments			\$278	\$508	\$508	\$508	\$508	\$508

6.5 Conclusions

The foregoing discussion is intended to be useful as an introduction to the issues that may be of concern to agency finance and accounting departments in planning for a Super ESPC project. Fortunately, this information should reassure agencies that there are very few new concepts to learn in this realm, if any, and no complex rules or systems to implement.

Perhaps the most apt way to describe the regulations governing agencies' accounting for their Super ESPC projects is in terms of what is *not* required:

- There are no explicit or implicit requirements imposed on agencies by the Super ESPC program, the contract, or DOE FEMP Delivery Order Guidelines regarding the agency's internal accounting for Super ESPC projects.
- The agency is not required to demonstrate that the guaranteed savings are being delivered through accounting procedures — M&V methods are the tools for this task, and the responsibility is in most cases the ESCO's.
- Accounting for Super ESPC projects requires no procedures beyond standard accounting practice.

One simple rule applies to all Super ESPC projects and expresses the sum effect of Super ESPC regulations on the agency's internal accounting:

- Payments to the contractor come from the energy and energy-related O&M and R&R accounts that accrue savings as the result of the work done under the Super ESPC delivery order.

The payments may never exceed the savings generated by the project in any given year.

The Bottom Line

In a Super ESPC project, the most important thing to all parties is seeing that the guaranteed savings are delivered. Any ESCO that intends to stay in business will ensure long before payments begin that the design and implementation of the project will take care of that. Appropriately selected, cost-effective verification procedures are used to verify that the ECMs are performing as intended and that guaranteed savings are being delivered — overall, but not per each ECM in particular.

The ESCO carefully develops baselines, estimates the expected savings for each ECM relative to the baselines, and develops a practical and cost-effective M&V methodology to verify that the savings guarantee is met. However, the guarantee applies to the bottom line of cost savings to the agency. The bottom line in the agency's books is the corollary of proving savings through M&V. If all the energy and related O&M and R&R bills, plus the ESCO, can be paid out of the designated accounts, delivery of the guaranteed savings is established in fact.